

Application Number		Application for (a-urban, b-agriculture, c-DWR/WUE:	
111		a) Prop 13 Urban Water Conservation	
Principle Applicant(Organization/Affiliation)			
The Metropolitan Water District of Southern California			
Project Title			
Installation of Efficient Commercial Dishwashers			
First Name-Authorized	Last Name (AA):	Title	
Stephen N.	Arakawa	Manager, Water Resource Management G	
Street Address		PO Box	
		54153	
City		State	
Los Angeles		CA	
Zip Code		Telephone Number(Include Area Code)	
90054		(213) 217-6052	
Fax Number (Include Area Code)		E-mail Address	
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First Name-Contact Per	Last Name-CP:	Contact-Title	
Ed	Thornhill	Manager, Regional Supply Unit	
Contact-Street Address		Contact-PO Box	
		54153	
Contact-City		Contact-State	
Los Angeles		CA	
Contact-Zip Code		Contact-Phone Number	
90054		(213) 217-6568	
Contact-Fax Number		Contact-E-Mail Address	
(213) 217-7159		ethornhill@mwdh2o.com	
Funds Requested (dollar amount)	Applicant Funds Pledged (dollar amount)	Total Project Costs (dollar amount)	
\$166,800.00	\$90,000.00	\$256,800.00	
Estimated Total Quantifiable Project Benefits (dollar amount)		Percentage of Benefits to be Accrued by App	
\$314,743.00		1	
Percentage of Benefits to be Accrued by CALFED or other		Estimated Annual Water to be Saved (acre-fe	
		42	
Estimated Total Amount of Water to be Saved (acre-fee		Over _____ Number of Years	
840		20	
Estimated Benefits to be Realized (terms of water qual,instream			
Duration of Project (month/year-month/year):		State-Wide	
01/03-12/05		<input type="checkbox"/>	
State Assembly District-location of project(35	State Senate District-location of project(1	18-40
State Assembly District-location of project(37-80	State Senate District-location of project(2	
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Congressional District(s)-location of project	23-52	Congressional District(s)-location of project(
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County-location of project		Most recent Urban Water Mgt Plan Submitt	
Los Angeles, Orange, Ventura, San Brndo, Riverside, San Di		1/12/2000	
Type Applicant-Urban(a)Agricl Feas Study(b) Gra	DWR WUE Projects		Project Focus
e) other-subdivision of state(include public water)			b) Urban

Project Type:

a) Implementation of Urban Best Management Practices

Quantifiable Objectives

Specify from choice (d) above

Specify from (k) above

Does Proposal involve change in land use (planned/future)ICheck box if yes

☐

PROPOSAL PART TWO

PROJECT SUMMARY

The Metropolitan Water District of Southern California (Metropolitan) is a water wholesaler serving 26 member agencies in Southern California. To meet increasing water demands, Metropolitan, in conjunction with its member agencies, pursues a multitude of opportunities to implement water demand management projects. For the past decade, water agencies pursuing water conservation objectives have used residential plumbing fixture rebate programs as the mainstay of their efforts. As these existing conservation programs mature, there is a need to expand the reach of programs into different end-user market sectors in order to keep water conservation – or demand management – growing to meet expectations. The two broad areas of most interest for future savings programs have been the landscape irrigation and commercial market sectors. Within the commercial sector, water use by the foodservice industry in its dishwashing operations appears to present water agencies with a significant opportunity for achieving sizable water use reductions.

This grant proposal requests funds that will be targeted toward the water savings opportunities in the commercial and institutional foodservice sector's dishwashing operation. Dishwashing operations in a typical restaurant use two-thirds of all the water used in the facility. The use of a water-efficient dishwashing machine, compared to a conventional machine, can reduce water use in the dishwashing operation by half.

Large commercial and institutional foodservice facilities tend to use high-volume dishwashing equipment that uses a conveyor belt fitted with flights to carry dishes through the washing process. These machines cost tens of thousands of dollars and the difference between purchasing a water-efficient machine versus a conventional machine can rest solely on the available budget of the purchaser, irrespective of potential life-cycle savings resulting from reduced utility expenses over the life of the machine.

This project proposes to work with the various dishwashing equipment manufacturers and their local sales forces to identify purchasers of these high-volume dishwashers that may be inclined to purchase a conventional machine, and provide them with a financial incentive to purchase the efficient model instead. The cost differential between conventional and efficient water use models is on the order of \$4,000 or more. By offering to fund the difference or at least reduce the differential in price, we would encourage customers to purchase the efficient machine, thereby ensuring the installation of water-efficient equipment in some of the largest facilities in the region. With a service life of twenty years or more, these machines represent a stream of water savings that extends far into the future. Additionally, we would gain facility access to monitor the customer's dishware throughput, hours of operation, water use and other utility costs, in order to understand actual resource savings in the field.

The number of the very large conveyor belt, flight-type commercial dishwashing machines purchased in Southern California is very limited. There may be fifty machines of this type purchased in one year in the region. The majority of purchases are to replace an existing machine, as opposed to the setup of a new operation. In the course of a three-year program, it is hoped that collaboration with food service equipment manufacturers will yield an opportunity to

effect up to 30 purchase decisions. Using Proposition 13 funding of \$3,000 per machine purchase, and a Metropolitan provided contribution of \$1,000 per machine purchase, much of the price differential between the standard and efficient machines can be effectively bridged. Assuming 30 machine purchases are influenced, at an average savings of 1.4 acre-feet per year (AFY) per efficient machine purchased, and a twenty year machine life, the water savings is estimated to be 840 AF over the life of the equipment.

The project would be carried out by a consultant familiar with the dishwashing manufacturer industry. Selection of a consultant by Metropolitan would be achieved through a Request For Proposal process. The initial component of the project involves coordinating with the equipment manufacturers, of which there are perhaps eight that produce the type of equipment under consideration here in Southern California. By enlisting their cooperation, we can jointly develop the specific mechanics of how to present the financial incentive being offered to the customer. Where in the sales cycle it should be introduced, the need for developing supporting literature, the best vehicles for industry awareness of the project are all the types of questions to be resolved in collaboration with the manufacturers. Assuming four and one-half days of coordination per manufacturer and their various individual sales forces in the region, this initial work is estimated to cost \$28,800.

When the equipment sales staff begins working with a potential customer of the type of dishwashing equipment targeted for this program, they will coordinate with the consultant and, if appropriate, the consultant will: interview the customer about the various influences that enter into the purchase process, perform a pre-installation site visit with the manufacturers representative, and, assuming a sale is consummated, conduct a post-installation follow-up visit. This will allow for an assessment of actual equipment usage in the field, water use information, and a truer sense of actual resource savings in the field. This work is estimated to require a total of two billable days per installation (interview and pre-site inspection, and post-installation data collection and assessment). Using 30 such installations, the total cost of this project assessment effort is estimated at \$48,000.

Metropolitan's contribution to the project will consist of a \$1,000 financial incentive per machine purchase and one-eighth of an engineer's staff time dedicated to the coordination of the study and management of the consultant's contract. Additional staff effort required to issue the RFP will make the total Metropolitan staff contribution cost approximately \$60,000.

A table of each party's financial contributions, by different project element, is shown below.

	Incentive (per machine)	Total incentive (@ 30 units)	Initial coordination and program set-up	Assessment	Project management	Totals
Prop. 13	\$3,000	\$90,000	\$28,800	\$48,000		\$166,800 (65%)
Met	\$1,000	\$30,000			\$60,000 in-kind	\$90,000 (35%)
Total	\$4,000	\$120,000	\$28,800	\$48,000	\$60,000	\$256,800

A. SCOPE OF WORK: RELEVANCE AND IMPORTANCE

1. The objectives of this project are as follows:
 - ?? To contribute to a customer's capital outlay for equipment by financially influencing the purchase process of very high volume commercial dishwashing machines to ensure water efficient equipment is installed in place of conventional equipment, thereby realizing a long-term water demand reduction opportunity,
 - ?? To understand if the financial incentive being offered is sufficient to effect the purchase decision,
 - ?? To quantify actual water, energy, chemical and overall cost savings realized in the field by the end-use customer with the installation of water-efficient equipment,
 - ?? To develop a working relationship with food service equipment manufacturers and their sales representatives, in order to understand how best to design this and future water use reduction programs in the food service industry,
 - ?? To understand the various influences upon equipment selection decisions by food service operators so as to design and develop more wide ranging programs for this industry.

Commercial dishwashers are present in almost every restaurant in the state of California. The number of restaurants in the state is estimated to be 75,000. Of these, 50,000 are considered medium- and high-volume establishments. Because dishwashers have a useful life of 20 years or more, getting water-efficient equipment in-place has long-term benefits for the state's efforts in water-use demand management. The opportunity for savings in this market sector has recently begun to be evaluated and will be seeing more attention in the near future.

This project uses a financial incentive to tip the scales in favor of selecting a water-efficient very high-volume dish machine over a conventional machine when there is a choice available and a customer is making a purchase decision. As a result, we effectively ensure that efficient equipment is installed.

The largest volume dishwashing machines use a conveyor belt fitted with flights to hold the dishes and transport them through the washing process. These machines can be configured with various features, such as power scrappers, multiple rinses, and a blower dryer. They are essentially custom machines and are partially specified by the length of the machine. A typical machine might be twenty-two feet long and cost approximately \$60,000. These dishwashers have a capacity of as much as 15,000 dishes per hour.

There are perhaps fifty machines of this size purchased in Metropolitan's service area in the course of a year. They may be purchased by a stadium authority, a convention center, a hotel with large banquet facilities, or a university foodservice. Often, the purchase

decision when selecting a model is driven by available budget, as opposed to life cycle cost savings. Because more efficient machines have an incrementally greater cost, they are sometimes not selected. That is why the use of a financial incentive to reduce or eliminate the cost differential is being proposed.

As we move forward in the area of water-efficient food service equipment, understanding the customer purchase process and the manufacturers' model offerings will enable water agencies to develop new approaches to influencing this market and targeting its resources to the most cost-effective opportunities. Building a relationship with the equipment manufacturers and the food service industry creates water utility credibility, something the energy utilities have long enjoyed. Using this select market segment as a starting point, we can look forward to expanding our reach into the mass market of food service operations and achieving increasing water savings into the future.

2. Metropolitan imports water from the Colorado River and the State Water Project (SWP) through the Bay-Delta. As the state works to comply with its commitment to reduce its take from the Colorado River, Metropolitan's access to its primary source of water is affected. Metropolitan's demand reduction efforts are also aimed at reducing the reliance on SWP water, in accordance with CALFED objectives. Metropolitan has developed an Integrated Resources Plan that lays out a strategy for maintaining water reliability for the region. Part of this strategy relies on successful demand management programs to meet the gap between projected demand and available supplies. The reliance on conservation to fill this role increases into the future. Thus, new conservation programs are needed to continue expanding the amount of conservation that is achieved in the region. Programs in areas such as commercial equipment technology are critical to the goal of opening new opportunities for water savings.

Metropolitan is committed to water conservation projects in order to: 1) reduce its demand for Bay-Delta water, 2) achieve the objectives of its 2000 Regional Urban Water Management Plan, 3) implement the components of its Integrated Water Resources Plan, and 4) comply with its obligations as a signatory to the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU).

This project is consistent with MOU Best Management Practice #9, Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts.

B. SCOPE OF WORK: TECHNICAL/SCIENTIFIC MERIT, FEASIBILITY, MONITORING AND ASSESSMENT

1. Metropolitan has long been involved with water-using fixture manufacturers in a variety of forums. We have membership on the ASME/ANSI Standards committee, composed primarily of plumbing fixture manufacturers. We have had previous acquaintance with food service manufacturers when the water savings opportunity in the food service dishwashing operation was first being identified. Metropolitan has found that manufacturers' sales representatives can act as a potent force in the marketplace when new conservation incentives are made available. Often, the greatest impediment to

implementing effective conservation programs is the inability of water agencies to gain the attention of the end-use customers. Equipment sales representatives interact with food service operators on an on-going basis. In the past, when water utilities implemented fixture incentive programs, the sales personnel for that industry used the rebate to great effect in aiding both their sales and the water agencies' penetration into the marketplace. This successful partnering will be relied upon again in the design and implementation of this project.

Selecting a consultant to fill this liaison role allows the program to move forward in a timely manner. Metropolitan staff will initiate the development of an RFP as soon as this project is authorized. When the grant funding becomes available, the RFP will be ready for distribution and, shortly thereafter, a consultant can be selected and the project can begin in earnest.

2. Tasks, schedule and deliverables.

	Task	Month Due*	Deliverable
1	Issue RFP	1	RFP Closing date defined
2	Select Consultant and execute contract	2	Consultant contract
3	Establish relationship with equipment manufacturers	3	Lit of eligible equipment and point of contact for related sales force
4	Develop customer interview guidelines	3	Interview guidelines
5	Establish sales strategy with each manufacturer	3	Written approach per manufacturer
6	Track potential customers with sales force	3 - 36	List of customers in consideration and participants in incentive
7	Perform customer interviews and preliminary site visit	4 - 36	Write-up of each customer's input
8	Perform follow-up site visit	8 – 36	Write-up of customer's satisfaction
9	Provide Quarterly Reports	3,6,9,12...36	Quarterly Reports

* the number of months after the receipt of funds

TASK LIST, SCHEDULE AND EXPENDITURES

QUARTERS

Tasks	1	2	3	4	5	6	7	8	9	10	11	12
Issue RFP and Select Consultant												
Develop dialog with equipment manufacturers												
Develop sales strategy												
Develop outreach material (if needed)												
Monitor sales opportunities												
Perform initial interview / site visit												
Perform follow-up visit / assessment												
Provide Quarterly Reports												
Quarterly Expenditures (\$000)												
Prop 13 Incentives	-	3	6	9	9	9	9	9	9	12	12	3
Manufacturer Coordination	12	2	2	2	2	2	2	1	1	1	1	0.8
Assessment	-	2	4	4	4	4	4	4	6	6	8	2
Prop 13 Expenditures	12	7	12	15	15	15	15	14	16	19	21	5.8
Project Management (in-kind)	8	6	4	4	4	4	4	4	4	4	6	8
Metropolitan Incentives	-	1	2	3	3	3	3	3	3	4	4	1
Total Metropolitan Cost Share	8	7	6	7	7	7	7	7	7	8	10	9
Project Total	20	14	18	22	22	22	22	21	23	27	31	14.8

3. The project's success will be quantified in a variety of ways.

?? How many purchase decisions were impacted?

Thirty purchases are targeted for the project. Was this an under- or over-estimate? Would a greater incentive level have had an impact? Exactly how many transactions at this level occur yearly? For how many does a financial incentive make sense?

?? What was the estimated savings achieved?

Development of objective quantification of water savings in the field is not widely available, primarily because it hasn't been oft attempted. The 1.4 AFY savings estimate used in this proposal was calculated based on manufacturers' specification sheets. The assessment of actual savings for each facility involved will substantially increase the available pool of information about this technology.

?? How did the purchase trend of water-efficient machines change during the project's duration?

In comparing the mix of conventional and water-efficient dishwashing machines sold in previous years, compared to the mix occurring during this project, some measure of the impact can be developed. Knowing how many potential customers still chose conventional machines will also identify its effectiveness at the defined rebate level.

?? What additional opportunities exist in this market sector?

How willing are the manufacturers' sales personnel to work with the water industry in this equipment niche? We will gain knowledge of the manufacturers' whole product line. Is this a partnership that can be expanded? Are they a good source of information for future project development?

The answers to this and other questions will be documented in the quarterly reports. The information will be used to provide progress reports to the DWR, develop professional papers, make presentations to water conservation groups, Metropolitan's member agencies, professional restaurant associations, meetings of equipment manufacturers, and any other venue that is available. A report will likely be posted on Metropolitan's website for third party downloading.

C. QUALIFICATIONS OF THE APPLICANTS

1. See attached resumes for the following Metropolitan employees:

?? Jon Sweeten, P.E.

?? William McDonnell

2. External Cooperators

Food service equipment manufacturers, their sales representatives, and food service operators are all cooperating on this project. Member agencies whose customers install new equipment will assist by providing water-use data.

D. BENEFITS AND COSTS

1. Project budget items, by funding entity

	b. Planning / Design / Engineering	c. Materials / Installation	g. Construction / Administration / Overhead	Totals
Proposition 13	\$76,800	\$90,000		\$166,800
Metropolitan		\$30,000	\$60,000 in-kind	\$90,000
Total	\$76,800	\$120,000	\$60,000	\$256,800

- b. Consultant's initial program analysis and design, in coordination with the equipment manufacturers, is part of the planning and design of the project. The cost is based on 4½ days of a consultant's time (8 hours billable/day @ \$100/hour, including travel expenses) for each of the 8 equipment manufacturers expected to be relevant to this project.

Consultant's coordination during the customer sales cycle is project engineering. The cost is based on 2 days per installation (8 hours billable/day @ \$100/hour, including travel expenses) times 30 installations.

- c. Incentives encouraging selection and installation of water-efficient equipment is categorized as materials and installation. \$4,000 /installation x 30 installations = \$120,000.

- g. Metropolitan's contract administration and project design assistance is part of project administration and overhead. One eighth of a Metropolitan engineer's staff time, fully burdened, and Metropolitan staff effort to issue a RFP, is valued at \$60,000.

2. Cost-Sharing

Metropolitan proposes to provide a portion of the total financial incentive being offered per device. The total value of this cost-share is \$30,000 (30 rebates at \$1,000 cost share each). These funds are available within Metropolitan's Conservation Credits funding and will remain available throughout the duration of the project. Metropolitan's Conservation Credits expenditures in recent years have averaged more than \$10 million per year.

Metropolitan also proposes to provide staff to issue the RFP, manage the consultant contract and direct the efforts of the consultant. Regular review of project progress will be incorporated into Conservation staff's work schedule. Approximately one-eighth of an engineer's time may be allotted for the management of this project, through its duration. This in-kind contribution of staff time, fully burdened, is valued at \$60,000 total.

3. Benefit Summary and Breakdown

a. Quantifiable Project Outcomes

It is expected that 30 water-efficient conveyor belt, flight-type dish machines will be installed as a result of this project. The differential in water use between a conventional machine and a water-efficient machine is estimated at 1.4 AFY. This is based on estimates reported in a paper presented at the Water Sources Conference held January, 2002, in Las Vegas, Nevada by John Koeller and David Mitchell titled "Commercial Dishwashers: A New Frontier in Energy and Water Conservation". The paper cites a recent study by San Diego Gas and Electric comparing a conventional machine to a water-efficient machine being installed in the San Diego Convention Center. The reported estimate of savings was 1.46 AFY, but I have rounded down for the sake of being conservative in the estimate of expected savings.

Thirty machines, each representing a savings of 1.4 AFY, and expected to have a life of at least 20 years, translates into a savings estimate of 840 AF over the life of the installed equipment. This is a water demand that would otherwise have to be met by imported water.

Because the location of the installations is not known in advance, the specific local retail water agency demand reduction cannot be stated.

Water Savings/Unit	# Units	Total Benefit		Present Value of Total Benefit
Acre-Feet / Unit ¹	Flight-type dishwashers	Acre-Feet	\$ ²	\$ ³
28	30	840	\$588,000	\$ 314,743

1. Based on 1.4 AF annual water savings per installation, for a duration of 20 years.

2. Based on a benefit of \$700/acre-foot, level for 20 years.

3. Based on a discount rate of 6% and a 20 year savings stream, beginning in Year 2. For more details, see attached spreadsheet printout.

b. Qualitative Project Outcomes

Metropolitan and its member agencies will share the avoided cost benefit of not having to import the water that is saved. CALFED also shares in the benefit, to a less quantifiable extent.

The benefits of the program will be consistent with CALFED's objectives as expressed in its Framework for Action (June 9, 2000) and the Record of Decision that followed. The proposed program will increase the amount of water saved through conservation and, by so doing, will support CALFED's objectives in the following manner.

- ✍ Reduce elevated Delta salinity levels in the Delta by drawing less water from that source, thereby leaving more water for salinity diversion.
- ✍ Enhance the aquatic habitats and ecological functions in the Bay-Delta by drawing less water from that source, particularly during dry periods with the impact of reduced water flow through the Delta is greatest.
- ✍ Reduce the imbalance between available Bay-Delta water supplies and the various beneficial needs by providing a new local water supply that will offset a portion of current and future demands.

4. Assessment of Costs and Benefits

a. Assumptions

- ?? Metropolitan benefit is \$700 per AF.
- ?? 30 water-efficient machines will be installed over 3 years
- ?? 8 installations in Year 1, 10 in Year 2, 12 in Year 3 of the grant period
- ?? Each machine represents 1.4 AFY savings
- ?? Machine life, and consequently the duration of savings, is 20 years

b. Benefits and costs in 2002 dollars, not discounted

- ?? Benefits = \$588,000
- ?? Costs = \$256,800

c. Present Value Equivalents for Benefits and Costs

- ?? Benefits = \$314,743 (present value in 2002 dollars at a 6% discount rate)
- ?? Cost = \$241,337 (present value in 2002 dollars at a 6% discount rate)

d. Benefits and Costs, by project entity

Entity	Benefit	Cost
Quantifiable Elements		
?? Metropolitan	\$314,743	\$90,000
?? Member Agencies	\$314,743	\$0
Non-quantified elements		
?? Metropolitan	New program development	Administration
?? Member Agencies	New savings opportunity	\$0
?? Food services purchasers	Rebate and utility savings	Uncovered cost difference
?? CALFED	Reduced Bay-Delta demand	State administration of grants

- e. Benefit/Cost = \$314,743 / \$241,337 = **1.30**

E. OUTREACH, COMMUNITY INVOLVEMENT AND ACCEPTANCE

This project relies on cooperation from local equipment manufacturer's sales representatives and interaction with local food service operations.

There is currently no plan to involve community based organizations in this project.

An effort will be made to see if this will engage the sanitation district's in participating in water conservation programs. These customers tend to be large wastewater dischargers, and as such, may be customers the sanitation district have more interaction with in the normal course of business.

Installation of Efficient Commercial Dishwashers

Calculation of present value benefits (2002 dollars)

<u>Grant Year</u>	<u>Units Installed</u>	[1.4 AFY/Unit] Savings of Installed Units (AFY)	Savings Stream in Successive years (AFY)	Benefit of Savings at \$700/AF (\$)	<u>Year of Water Savings Realization</u>	Non-discounted Benefit Stream (\$)
1	8	11.2	11.2	7840	1	
2	10	14	25.2	17640	2	\$ 7,840
3	12	16.8	42	29400	3	\$ 17,640
			42	29400	4	\$ 29,400
			42	29400	5	\$ 29,400
			42	29400	6	\$ 29,400
			42	29400	7	\$ 29,400
			42	29400	8	\$ 29,400
			42	29400	9	\$ 29,400
			42	29400	10	\$ 29,400
			42	29400	11	\$ 29,400
			42	29400	12	\$ 29,400
			42	29400	13	\$ 29,400
			42	29400	14	\$ 29,400
			42	29400	15	\$ 29,400
			42	29400	16	\$ 29,400
			42	29400	17	\$ 29,400
			42	29400	18	\$ 29,400
			42	29400	19	\$ 29,400
			42	29400	20	\$ 29,400
			30.8	21560	21	\$ 29,400
			16.8	11760	22	\$ 21,560
			0	0	23	\$ 11,760
			840			\$ 588,000

<u>Grant Year</u>	<u>Units Installed</u>		
1	8	32000	\$ 32,000
2	10	40000	\$ 37,736
3	12	48000	\$ 42,720
			\$ 112,456

using 6%

Discounted
Benefit
Stream
(\$)

\$ 7,396
\$ 15,700
\$ 24,685
\$ 23,288
\$ 21,969
\$ 20,726
\$ 19,553
\$ 18,446
\$ 17,402
\$ 16,417
\$ 15,488
\$ 14,611
\$ 13,784
\$ 13,004
\$ 12,268
\$ 11,573
\$ 10,918
\$ 10,300
\$ 9,717
\$ 9,167
\$ 6,342
\$ 3,263

\$ 316,015

Installation of Efficient Commercial Dishwashers

Calculation of present value benefits (2002 dollars)

using 6%

<u>Grant Year</u>	<u>Units Installed</u>	[1.4 AFY/Unit] Savings of Installed Units (AFY)	Savings Stream in Successive years (AFY)	Benefit of Savings at \$700/AF (\$)	Year of Water Savings Realization	Non-discounted Benefit Stream (\$)	Discounted Benefit Stream (\$)
1	6	8.4	8.4	5880	1		
2	12	16.8	25.2	17640	2	\$ 5,880	\$ 5,547
3	12	16.8	42	29400	3	\$ 17,640	\$ 15,700
			42	29400	4	\$ 29,400	\$ 24,685
			42	29400	5	\$ 29,400	\$ 23,288
			42	29400	6	\$ 29,400	\$ 21,969
			42	29400	7	\$ 29,400	\$ 20,726
			42	29400	8	\$ 29,400	\$ 19,553
			42	29400	9	\$ 29,400	\$ 18,446
			42	29400	10	\$ 29,400	\$ 17,402
			42	29400	11	\$ 29,400	\$ 16,417
			42	29400	12	\$ 29,400	\$ 15,488
			42	29400	13	\$ 29,400	\$ 14,611
			42	29400	14	\$ 29,400	\$ 13,784
			42	29400	15	\$ 29,400	\$ 13,004
			42	29400	16	\$ 29,400	\$ 12,268
			42	29400	17	\$ 29,400	\$ 11,573
			42	29400	18	\$ 29,400	\$ 10,918
			42	29400	19	\$ 29,400	\$ 10,300
			42	29400	20	\$ 29,400	\$ 9,717
			33.6	23520	21	\$ 29,400	\$ 9,167
			16.8	11760	22	\$ 23,520	\$ 6,919
			0	0	23	\$ 11,760	\$ 3,263
				840			
					\$	588,000	\$ 314,743

Calculation of present value costs (2002 dollars)

<u>Grant Year</u>	<u>Units Installed</u>	Non-discounted Expenditure Stream (\$)	using 6% Discounted Cost Stream (\$)
1	6	\$ 74,000	\$ 74,000
2	12	\$ 87,000	\$ 82,075
3	12	\$ 95,800	\$ 85,262
		\$ 256,800	\$ 241,337

William P. McDonnell
15217 Hawthorn Ave.
Chino Hills, CA 91709
Work (213) 217-7693/ Home (909) 393-6699

HIGHLIGHTS

- ? 20 years of management experience in electric, gas and water utilities
- ? Master of Business Administration, University of La Verne, 1995
- ?? Public Works Commission, City of Chino Hills (1997-present)

PROFESSIONAL EXPERIENCE

SENIOR RESOURCE SPECIALIST - *Metropolitan Water District of Southern California* ***(4/96 – present)***

Managed an \$11 million annual residential conservation credits program and directed over 100-member agency agreements worth over \$50 million. With successful completion of both tasks, currently manage a regional \$7 million Commercial/Industrial/Institutional (CII) conservation credits program through a partnership with the United States Bureau of Reclamation (USBR) and member agencies. Also manage the industrial process program for large water users and the grant Innovative Conservation Program (ICP) for new water efficient technologies.

EFFICIENCY PROGRAMS MANAGER - *City of Anaheim, Public Utilities Department* ***(3/93 – 4/96)***

Managed a \$1.5 million annual budget, directed a seven person staff, implemented 20 water and electric demand side management (DSM) programs resulting in 1,000 acre feet of water savings and 11 megawatts of on-peak energy reductions annually. Prepare program presentations for Public Utilities Board and City Council meetings.

CONSERVATION PROGRAM SPECIALIST - *Pasadena Water and Power Department* ***(7/90 - 3/93)***

Managed three engineers who designed and implemented a variety of Demand Side Management (DSM) programs including industrial water processes, thermal energy storage, electric heat pumps, HVAC and lighting. Initiated a Tri-Cities conservation consortium with the cities of Glendale and Burbank to leverage funds and share information for the purpose of better serving our customers.

MANAGEMENT CONSULTANT – *Honeywell DMC Services* ***(9/81 – 7/90)***

I worked with a number of electric, gas and water utilities, along with local and state agencies. The first three of those years I was working in Massachusetts, so for brevity, I have excluded them here. Brief explanations of the projects are as follows:

EXECUTIVE DIRECTOR - *Southern California Edison* ***(10/88 - 7/90)***

Served as Executive Director for the ***Heat Pump Council of Southern California***.
Directed a 120-member council comprised of utilities, HVAC manufactures and contractors.

RATE SPECIALIST - *Southern California Edison* ***(10/88 - 7/90)***

Managed Time-of-Use and Domestic Seasonal rates.

PROGRAM MANAGER - (9/86 - 10/88)

Monterey County Water Conservation Program

Managed a staff 35. Worked with Monterey Peninsula Water Management District to implement a direct installation water conservation program.

City of San Jose Water Conservation Program

Directed a staff of 24. Worked with the San Jose Office of Environmental Management to implement a direct installation water conservation program.

Southern California Edison Load Management Program

Supervised a staff of 12. Field-tested a random sample of the over 100,000 air conditioner load control devices on commercial and residential units for signal reception.

SUPERVISOR - (9/84 - 9/86)

Southern California Gas Company's Weatherization, Finance and Credits Program

Supervised a staff of 65 implementing a weatherization and building envelope repair program.

City of Santa Monica Energy Fitness Program

Supervised 25 employees for a direct installation energy and water conservation program.

EDUCATIONAL BACKGROUND

MASTER OF BUSINESS ADMINISTRATION - UNIVERSITY OF LA VERNE, La Verne, California (1995)

BACHELOR OF ARTS IN BUSINESS – UNIVERSITY OF MASSACHUSETTS, Amherst, Massachusetts (1980)

PROFESSIONAL CERTIFICATIONS and ASSOCIATIONS

- ?? Chino Hills Public Works Commissioner
- ?? American Society of Mechanical Engineers (ASME)
- ?? American Water Works Association (AWWA)
- ?? California Urban Water Conservation Council (CUWCC)

REFERENCES AVAILABLE ON REQUEST

JON G. SWEETEN, P.E.

Home: 2315 29th Street, Santa Monica, CA 90405-2009, USA (310) 396-3266
Work: (213) 217-7296, fax (213) 217-7159, jsweeten@mwd.dst.ca.us

SUMMARY

- Nationally recognized expert in the field of water conservation
- Excellent public speaking skills
- Effective manager and team leader
- Registered Professional Civil Engineer in California

PROFESSIONAL EXPERIENCE

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, Los Angeles, CA

1993- **Engineer**

- Present
- Coordinator for Commercial/Industrial Water Conservation programs covering urban service area of 17 million people
 - Manager of the largest Commercial/Industrial on-site water-use survey program in US

JAMES M. MONTGOMERY, CONSULTING ENGINEERS, INC., Pasadena, CA

1991- **Supervising Engineer**

- 1992
- Analyzed long-term water supply options for a coastal community
 - Worked with government officials and citizen forums to maintain public involvement

U.S. ARMY CORPS OF ENGINEERS, Los Angeles District, Los Angeles, CA

1987- **Study Manager**

- 1991
- Managed a comprehensive water control study for Los Angeles County
 - Administered a \$1 million annual budget
 - Oversaw a \$327 million flood control project design
 - Authored feasibility report and coordinated Environmental Impact Study
 - Served as District point of contact on all Los Angeles River issues

1984- **Reservoir Regulation Unit Chief**

- 1987
- Coordinated water control activities in the Los Angeles District
 - Developed an expert system algorithm for dam operations
 - Authored reservoir Water Control Manual
 - Supervised a seven person staff

PROFESSIONAL ASSOCIATIONS

Former Chair of ICI Water Conservation Committee, American Water Works Association
Previous Chair of CII Subcommittee, California Urban Water Conservation Council
Instructor, Water Conservation Training Workshops
Invited Speaker on Water Conservation, Department of Water and Forestry, South Africa

EDUCATION

1997- Present	University of California Extension, Los Angeles, CA Completing a Certificate in Personal Financial Planning
1985- Present	Employer sponsored courses in Project Management, Planning Policy, Financial Analysis, Hydrologic Modeling, and others
1982- 1984	University of Colorado, Boulder, CO Master of Science, Civil Engineering Concentration in Water Resources engineering
1976- 1979	University of Maryland, College Park, MD Bachelor of Science, Physical Sciences

PUBLICATIONS

- 1985 "A Simulation Model of Boulder's Alpine Water Supply," with C.M. Bredecke, Proceedings of the 53rd Western Snow Conference, Boulder, CO
- 1984 "Application of the Precipitation-Runoff Modeling System to the Boulder Alpine Watershed," Master's Thesis, Boulder, CO

PRESENTATIONS

- 1998 "Response to a Water Efficiency Survey Program for the CII Sector: Why Customers Do or Don't Implement Survey Recommendations," American Water Works Association 1998 Annual Conference, Dallas, TX
- 1997 "Identifying the Conservation Opportunities in the CII Sector," American Water Works Association, 1997 Annual Conference, Atlanta, GA
- 1991 "Political and Institutional Constraints on Water Resource Studies," ASCE 18th Annual Water Resources Planning & Management and Urban Water Resources Conference, New Orleans, LA
- 1984 "Management of a Municipally Owned Alpine Watershed Using Continuous Simulation," International Symposium on Urban Hydrology, Hydraulics and Sediment Control, University of Kentucky, Lexington, KY

AWARDS

Official Commendation for Outstanding Work, July 1989 and February 1990
Special Award for Extraordinary Performance, April 1988, May 1989, December 1989